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RTN 3-23246

**Partial Permanent Solution Statement
for 84 Washington Street (Lot 2),
Somerville, Massachusetts**

50 Tufts Street Site, Somerville, Massachusetts

Submitted to:

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Executive Summary

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, GEI Consultants, Inc. (GEI) prepared this Partial Permanent Solution Statement for 84 Washington Street (Lot 2), Somerville, Massachusetts (the Property), which is a portion of the 50 Tufts Street site (the Site; Fig. 1). The Site is identified by Massachusetts Department of Environmental Protection (MassDEP) Release Tracking Number (RTN) 3-23246. A Site Map that shows the Property in relation to the Site boundary is presented in Fig. 2. This document provides closure for a portion of the Site under the Massachusetts Contingency Plan (MCP; 310 CMR 40.0000) and indicates that a condition of No Significant Risk (NSR) exists at the Property.

A release of chlorinated volatile organic compounds (VOCs) to soil and groundwater at the Site was first reported to the MassDEP in 2002. Subsequent investigations at the Site identified chlorinated VOCs, particularly tetrachloroethylene (also called perchloroethylene [PCE]), in indoor air at 50 Tufts Street, and in groundwater and indoor air at residential and commercial properties in the vicinity of 50 Tufts Street.

There is no groundwater monitoring well located at the Property. However, based on the concentrations of chlorinated VOCs in groundwater in monitoring wells located approximately 35 feet and 275 feet from the Property, the concentration of PCE in shallow groundwater at the Property is estimated to be less than the laboratory reporting limit of 1 microgram per liter ($\mu\text{g/l}$). The Property is located within the Site solely due to its location over low concentrations of groundwater contamination in the deep overburden and bedrock.

Based on the following lines of evidence, GEI concludes that the vapor intrusion pathway is incomplete at the Property:

- Residual or connected phase dense non-aqueous phase liquid (DNAPL) has not been detected at or near the Property.
- Chlorinated VOCs have not been detected above laboratory reporting limits in shallow groundwater samples collected near the Property (MW117S and MW118S).
- PCE was detected at 0.233 milligrams per kilogram, which is just above the laboratory reporting limit, in the soil sample collected during the installation of MW118D, located 35 feet west of the Property. Chlorinated VOCs were not detected above laboratory reporting limits in soil samples collected during the

installation of MW117D. The low concentrations detected in soil are not considered to pose a risk of vapor intrusion at the Property.

A Partial Permanent Solution Statement is appropriate for the Property based on the following:

- No Significant Risk: A condition of NSR to human health, safety, public welfare, and the environment exists for all receptors with No Conditions at the Property, and no remedial actions are required.
- Source Elimination and Control: There are no unpermitted releases of oil or hazardous material (OHM) at the Site, and the sources of OHM at the Site are eliminated to the extent feasible and are controlled.
- Migration Control: The groundwater and soil vapor plumes at the Site are stable.
- NAPL: Visible NAPL has not been observed at the Site, and any DNAPL that may be present is not migrating and exists in a stable configuration. The Phase III for the Site demonstrated that it is not feasible to eliminate DNAPL.
- An Activity and Use Limitation (AUL) is not required to maintain a condition of NSR at the Property.

1. Introduction

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, GEI Consultants, Inc. (GEI) of Woburn, Massachusetts prepared this Partial Permanent Solution Statement for 84 Washington Street (Lot 2), Somerville, Massachusetts (the Property), which is a portion of the 50 Tufts Street site (the Site; [Fig. 1](#)). The Site includes 50 Tufts Street, surrounding residential and commercial properties to the east and immediately west of 50 Tufts Street, and the Michael E. Capuano Early Childhood Center (Capuano Center). A Site Map that shows the Property in relation to the Site boundary is presented in [Fig. 2](#). Chlorinated volatile organic compounds (VOCs), particularly tetrachloroethylene (also called perchloroethylene [PCE]), have been detected in soil, groundwater (shallow and deep overburden, and bedrock), soil vapor, and indoor air at portions of the Site.

This document provides closure for the Property, which is a portion of the Site under the Massachusetts Contingency Plan (MCP; 310 CMR 40.0000), and indicates that a condition of No Significant Risk (NSR) exists at the Property.

The Site is identified by Massachusetts Department of Environmental Protection (MassDEP) Release Tracking Number (RTN) 3-23246. The Immediate Response Action (IRA) Plan associated with RTN 3-23246 was submitted to MassDEP on January 9, 2006. The Site is currently classified Tier II. The “Phase II Comprehensive Site Assessment, Method 3 Risk Characterization, and Phase III Remedial Action Plan,” (Phase II/III) for the Site was submitted to MassDEP on July 14, 2008. The “Phase IV Remedy Implementation Plan,” (Phase IV) was submitted to MassDEP on August 10, 2009. The “Immediate Response Action Completion Report and Remedial Monitoring Report No. 11,” (IRAC Report) was submitted to MassDEP on November 13, 2009, and the “Immediate Response Action Completion Report Addendum,” was submitted to MassDEP on April 1, 2011. The “Phase IV Final Inspection Report, Remedial Monitoring Report No. 15, and Phase V Remedy Operation Status Report,” was submitted to MassDEP on August 4, 2011. GEI continues to submit semi-annual Phase V Status Reports for the Site. The most recent Status Report was submitted to MassDEP on February 3, 2016.

1.1 Purpose

The purpose of this Partial Permanent Solution Statement, in accordance with the requirements of the MCP, is to document that a Permanent Solution has been achieved for a portion of the Site.

1.2 Scope

The scope of this Partial Permanent Solution Statement for the Property is to:

- Provide a summary of the environmental conditions.
- Evaluate the risk to human health, safety, public welfare, and the environment at the Property.
- Demonstrate that the applicable requirements for a Permanent Solution have been achieved.

1.3 Submittals

The original MassDEP transmittal form (BWSC-104) was submitted online via eDEP and a copy is included in [Appendix A](#). As required by the MCP (310 CMR 40.1403(3)(f)), GEI submitted letters to the Somerville Chief Municipal Officer and the Board of Health notifying them of the availability of this Partial Permanent Solution Statement. Copies of the notification letters are in [Appendix B](#).

1.4 Public Record

Documents related to the environmental investigations conducted at the Site are on file with the MassDEP Northeast Regional Office located at 205B Lowell Street in Wilmington, Massachusetts. Additionally, local public document repositories have been established at the Somerville Central Public Library and at the City of Somerville Office of Sustainability and Environment.

1.5 Contact Information

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1.6 Conceptual Site Model

GEI developed this Conceptual Site Model (CSM) to describe release mechanisms, contaminant distribution, and potential exposure pathways associated with the Property. The CSM is based upon the investigation data documented in the Phase II/III and IRAC Report. Site features associated with the CSM are shown in [Fig. 2](#).

1.6.1 Property Location and Description

The Property is located within the Site boundary associated with a release of chlorinated VOCs to soil and groundwater at 50 Tufts Street, located approximately 1,170 feet (ft) northwest of the Property. The Property is located in a commercial/residential zoning district and fronts Washington Street to the north, is bounded by a vacant strip mall to the west, New Washington Street to the south, and a hotel to the east. A residential apartment complex is located on the Property (Cobble Hill Apartments).

The 84 Washington Street property was subdivided into two parcels in 2013 (Lot 1 and Lot 2). The Cobble Hill Apartments are located on Lot 2. Lot 1 is currently a vacant commercial strip mall, and is completely surrounded by fence. A copy of the subdivision survey plan recorded at the Middlesex South Registry of Deeds is in Appendix C.

1.6.2 Contaminant Distribution

From approximately 1955 to approximately 2002, 50 Tufts Street was used for storage and distribution of industrial chemicals, laundry supplies, and dry cleaning supplies. Chemicals stored at and delivered to and from 50 Tufts Street included chlorinated solvents. These chlorinated VOCs – particularly PCE, trichloroethylene (TCE), and 1,1,1-trichloroethane (TCA) – have been detected in soil, soil vapor, indoor air, and groundwater at 50 Tufts Street. A release of chlorinated VOCs to soil and groundwater at the Site was first reported to MassDEP in 2002.

Chlorinated VOCs generally have not been detected in soils beyond the boundaries of 50 Tufts Street. Chlorinated VOCs have been detected at the Site in the shallow and deep overburden and bedrock groundwater. There is no groundwater monitoring well located at the Property. However, based on the concentration of chlorinated VOCs in shallow groundwater in monitoring wells located approximately 35 feet from the Property (MW-118S), and 275 feet from the Property (MW117S), the concentration of PCE in shallow groundwater at the Property is estimated to be less than the laboratory reporting limit of 1 microgram per liter ($\mu\text{g/l}$).

The eastern boundary of the Site is based on the lateral extent of the deep overburden and bedrock groundwater plumes, where very low concentrations of PCE have been detected in groundwater collected from wells in till and bedrock (Fig. 2). The Property is located within the Site solely due to its location over low concentrations of groundwater contamination in the deep overburden and bedrock.

1.6.3 Site Conditions

As presented in Phase V submittals for the Site, an evaluation of the MNA program indicates that the groundwater plumes are stable, overall groundwater concentrations of chlorinated VOCs are not increasing, and natural attenuation processes are occurring at the Site which will likely reduce contaminant concentrations in groundwater over time. Previous investigations have also demonstrated that soil vapor plumes are stable.

Visible NAPL has not been observed at the Site, and any DNAPL that may be present is not migrating and exists in a stable configuration. The Phase III demonstrated that it is not feasible to eliminate DNAPL at the Site. There are no unpermitted releases of oil or hazardous material (OHM) at the Site. Accordingly, all sources of OHM at the Site have been eliminated or controlled to the extent feasible.

2. Property Investigations

Since March 2006, GEI has conducted subsurface investigations that included collecting soil, groundwater, soil vapor, and indoor air samples across the Site for laboratory testing. The investigations that are representative of conditions at the Property are summarized below. The laboratory reports associated with the majority of these investigations have been submitted to MassDEP under previous submittals, and are not re-presented in this report.

2.1 Groundwater Sampling

There is no groundwater monitoring well located at the Property. However, the concentrations of chlorinated VOCs detected in groundwater samples collected from upgradient monitoring wells located approximately 35 ft west of the Property (MW118S, MW118T and MW118D) and approximately 275 feet southwest of the Property (MW117S, MW117T and MW117D), are considered to be representative of groundwater conditions at the Property.

Seventeen groundwater samples have been collected from MW118S, 18 groundwater samples have been collected from MW118T and 23 groundwater samples have been collected from MW118D (including one duplicate sample collected during the October 2009 sampling event), between July 2007 and April 2016. Seventeen groundwater samples have been collected from MW117S, MW117T, and MW117D between July 2007 and April 2016. The groundwater samples were submitted to Accutest Laboratories (Accutest) of Marlborough, Massachusetts for analysis of VOCs by U.S. Environmental Protection Agency (EPA) Method 8260B. The laboratory testing results for groundwater samples collected from MW118S, MW118T, MW118D, MW117S, MW117T, and MW117D are summarized in [Table 1](#).

Chlorinated VOCs were not detected above laboratory reporting limits in groundwater samples collected from monitoring well MW118S. PCE was detected in July 2007 and April 2015 at estimated concentrations below the laboratory reporting limits.

4- Isopropyltoluene, a compound not related to the Site, was detected at low concentrations above laboratory reporting limits in April 2011 and April 2015 and at estimated concentrations below laboratory reporting limits in April 2014. Monitoring well MW118S is a shallow well screened between 3 and 14 ft below ground surface (ft bgs).

Monitoring well MW118T is a deep overburden well screened between 39.5 and 49.5 ft bgs. The following compounds were detected above laboratory reporting limits in at least one groundwater sample collected from MW118T: 1,1- DCA, methyl tert-butyl ether (MTBE),

PCE and vinyl chloride. Cis-1,2-dichloroethylene (DCE) and TCE also were detected at estimated concentrations below laboratory reporting limits. MTBE is not a compound related to the Site.

Monitoring well MW118D is a bedrock well screened between 70 and 80 ft bgs. The following compounds were detected above laboratory reporting limits in at least one groundwater sample collected from MW118D: Chloroethane, 1,1- DCA, cis-1,2-DCE, trans- 1,2-DCE, PCE, TCE and vinyl chloride. Benzene, carbon disulfide, 4- Isopropyltoluene, MTBE, naphthalene and toluene were also detected at estimated concentrations below laboratory reporting limits. Benzene, carbon disulfide, 4- Isopropyltoluene, MTBE, naphthalene and toluene are not related to the Site.

Monitoring well MW117S is a shallow well screened between 5 and 20 ft bgs. Chloroform was detected above the laboratory reporting limit in April 2012. Chloroform is not related to the Site. No other analytes were detected above laboratory reporting limits in groundwater samples collected from MW117S.

Monitoring well MW117T is a deep well screened between 35 to 45 ft bgs in glacial till. Chlorinated VOCs were not detected above laboratory reporting limits in groundwater samples collected from monitoring well MW117T. MTBE was detected at low concentrations, but is not related to the Site.

Monitoring well MW117D is a deep well screened between 60 to 70 ft bgs in glacial till. Chlorinated VOCs were not detected above laboratory reporting limits in groundwater samples collected from monitoring well MW117D. Carbon disulfide and MTBE were detected at low concentrations, but are not related to the Site.

2.2 Irrigation Water Sampling

On June 25, 2007, GEI collected a water sample from the irrigation system at the Cobble Hill Apartments located at 84 Washington Street. Water for the irrigation system is supplied by a bedrock irrigation well (Fig. 2) located on the southern portion of 84 Washington Street, abutting the Property to the southeast. According to information obtained from Mr. Bob Keene of Corcoran Jennison Management, LLC, the management company for the Cobble Hill Apartments, the well is approximately 300 ft deep, and bedrock was encountered at 76 ft bgs during drilling. Only low concentrations of acetone and chloroform were detected above laboratory reporting limits in the June 2007 irrigation system sample. Because the June 2007 irrigation system sample was not collected from a traditional monitoring well, and because there is limited information on the irrigation well construction, the analytical results for the June 2007 irrigation system sample are considered only to be a qualitative indicator of deep groundwater conditions near the southeastern portion of the Property. The laboratory testing

results for the irrigation well groundwater sample (COBBLE-IR-1) are summarized in [Table 1](#).

2.3 Soil Sampling

Soil sample B118D-S2 (10 to 12 ft) was collected during the installation of monitoring well MW118D. PCE was detected at a low concentration (0.233 milligrams per kilogram [mg/kg]) that is well below the applicable MCP Reportable Concentration for residential exposure (RCS-1; 1 mg/kg).

Soil sample B117D-S2 (8 to 10 ft) was collected during the installation of monitoring well MW117D. Naphthalene was detected at a low concentration, but is not related to the Site.

GEI submitted these samples to Accutest for VOC analysis by EPA Method 8260B. The laboratory testing results for these soil samples are summarized in [Table 2](#).

3. Evaluation of Vapor Intrusion Pathway

All pertinent data were reviewed and considered to evaluate the potential for a complete vapor intrusion pathway on the Property. Based on the following lines of evidence, there is no such complete vapor intrusion pathway:

- Residual or connected phase DNAPL has not been detected at or near the Property.
- Chlorinated VOCs have not been detected above laboratory reporting limits in shallow groundwater samples collected near the Property (MW118S and MW117S).
- PCE was detected at 0.233 milligrams per kilogram, which is just above the laboratory reporting limit, in the soil sample collected during the installation of MW118D, located 35 feet west of the Property. Chlorinated VOCs were not detected above laboratory reporting limits in soil samples collected during the installation of MW117D. The low concentrations detected in soil are not considered to pose a risk of vapor intrusion at the Property.

4. Method 1 Risk Characterization

Five Site-wide Method 3 Risk Characterization Reports were previously prepared for the Site. The July 2008 Phase II/Phase III included a Method 3 Risk Characterization for the Site, prepared by AMEC Earth & Environmental (AMEC) of Westford, Massachusetts. In response to MassDEP comments, AMEC prepared a Supplemental Method 3 Risk Characterization (Supplemental Risk Characterization) in May 2009. The Supplemental Risk Characterization evaluated potential risks using the framework in the July 2008 Method 3 Risk Characterization, including an indoor air Exposure Assessment for each affected residence without an effective Exposure Pathway Mitigation Measure (EPM). A Revised Supplemental Risk Characterization was prepared to support the IRAC Report. Potential risks presented in the Supplemental Risk Characterization were updated in the Revised Supplemental Risk Characterization to reflect additional data collection and additional EPMMs installed by GEI. An Updated Revised Supplemental Risk Characterization was prepared in April 2011 to respond to a MassDEP Notice of Audit Findings and Notice of Noncompliance for the IRAC Report. An Updated Method 3 Risk Characterization was prepared by ARCADIS U.S., Inc. of Chelmsford, Massachusetts in August 2015 to incorporate updated MassDEP toxicity information for PCE and TCE.

Based on all lines of evidence, there is not a complete vapor intrusion pathway at the Property. Accordingly, a Method 1 Risk Characterization was completed for the Property (84 Washington Street (Lot 2) Risk Characterization) in accordance with 310 CMR 40.0900 to support this Partial Permanent Solution Statement. A Method 1 Risk Characterization evaluates foreseeable Site uses, potential receptors, compounds of potential concern (COPCs), and exposure point concentrations (EPCs), and compares EPCs detected in soil and groundwater to MassDEP-derived standards. If the EPCs in soil and groundwater are less than the applicable Method 1 standards then a condition of NSR of harm to human health, public welfare, and the environment exists. In accordance with 310 CMR 40.0971(5), a separate characterization of the risk of harm to safety was also conducted.

A Method 1 Risk Characterization was appropriate for the Property because; 1) COPCs have not been detected at or near the Property in media other than soil and groundwater; 2) MCP standards exist for the COPCs detected at or near the Property; and 3) compounds considered by MassDEP to bioaccumulate are not present within 2 ft of the ground surface.

4.1 Current and Reasonably Foreseeable Site Activity and Use

Consistent with the requirements of the MCP (310 CMR 40.0923), the 84 Washington Street (Lot 2) Risk Characterization considered both current and future uses of the Property. The

current use of the Property is as a residence, and the reasonably conservative foreseeable use of the Property is also residential.

4.2 Potential Human Receptors

Potential human receptors were identified based on current and foreseeable uses of the Property. Current use receptors at the Property are residents. Future use receptors of the Property are future residents and construction workers during potential future excavation/development activities.

4.3 Potential Environmental Receptors

The Property is in an urban area, is fully developed, and would not likely represent a potentially significant terrestrial habitat. Based on the low levels of COPCs in accessible surface soils and the scarcity of open land, the Property does not provide for exposures for potential terrestrial receptors.

The closest surface water bodies are the Mystic River, located approximately 1 mile northeast of the Property, and the Charles River located approximately 1.7 miles south-southeast of the Property. Based on the distance to the nearest aquatic receptors and the current levels of COPCs in groundwater, the transport of COPCs in groundwater to surface water and sediment is not considered to be a significant exposure pathway.

4.4 Summary of Analytical Results

The environmental conditions at the Property have been characterized based on data collected in the immediate vicinity of the Property, as described in Section 2.

4.4.1 Soil

PCE was detected at 0.233 mg/kg, which is just above the laboratory reporting limit, in the soil sample collected during the installation of MW118D, located 35 ft west of the Property (Table 2). Chlorinated VOCs were not detected in the soil sample collected during installation of MW117D, located approximately 275 ft southwest of the Property.

For purposes of this risk characterization, we have conservatively considered the soil concentrations in the soil sample collected from MW118D (B118D-S2) to be representative of soil at the Property.

4.4.2 Groundwater

We reviewed and evaluated groundwater data for use in the Method 1 Risk Characterization to identify potential exposure points and derive EPCs based on the relevant groundwater categories identified for the Property. Groundwater data included in the Method 1 Risk Characterization are from the monitoring wells located 35 ft west of the Property (MW118S, MW118T, and MW118D), and approximately 275 ft southwest of the Property (MW117S, MW117T, and MW117D), and are presented in [Table 1](#).

Although MW117S is located just beyond the disposal site boundary, it is considered representative of groundwater conditions because of its proximity to the Property.

Because the July 2007 irrigation water sample was not collected from a traditional groundwater monitoring well, the laboratory analytical results associated with the irrigation water sample are not quantitatively considered in the risk characterization. However, they provide a qualitative indicator of deeper groundwater conditions near the southeastern portion of the Property.

4.4.3 Hot Spot Evaluation

Under the MCP (310 CMR 40.0924), hot spots must be considered as distinct exposure points. A hot spot is defined as a discrete area where the concentrations of OHM are substantially higher than those concentrations in the surrounding area. No “hot spots” have been identified at the Property.

4.5 COPCs

The following compounds were detected above laboratory reporting limits in at least one groundwater sample collected from monitoring wells MW118S, MW118T, MW118D, MW117S, MW117T, and MW117D: Chloroethane, 1,1- DCA, cis-1,2-DCE, MTBE, 4- Isopropyltoluene, naphthalene, PCE, TCE, and vinyl chloride. Benzene, carbon disulfide, MTBE and toluene were also detected at estimated concentrations below laboratory reporting limits. The following compounds were detected above laboratory reporting limits in at least one soil sample collected during the installation of MW118D and MW117D: benzene, chloroform, naphthalene, PCE.

The COPCs at the Site have been limited to certain chlorinated solvents, together with their associated breakdown products. Carbon disulfide, MTBE, and 4-isopropyltoluene have historically been detected at higher concentrations in monitoring wells located several hundred feet away from the 50 Tufts Street property (MW106, MW118S, MW117D, and MW121D), and benzene and naphthalene have been detected at higher concentrations in soil

samples collected several hundred feet away from the Property (B118D-S2 and B117D-S2) than the maximum concentration detected in samples collected from the 50 Tufts Street property. These compounds are not considered to be associated with the releases of OHM at 50 Tufts Street; therefore, they are not COPCs at the Site and are not evaluated further in this risk characterization for the Property.

COPCs were not detected in groundwater samples collected from monitoring wells MW118S, MW117S, MW117T, and MW117D. The COPCs cis-1,2-DCE, 1,1-DCA, PCE, TCE, and vinyl chloride were detected in at least one sample collected from MW118T and MW118D. PCE was the only COPC detected in soil samples B118D-S2 and B117D-S2.

4.6 Soil and Groundwater Categories

This section identifies and documents the applicable soil and groundwater categories, as described in the MCP (310 CMR 40.0930). The soil and groundwater categories are considered general indicators of the potential for exposure to OHM.

4.6.1 Soil Categories

Under the MCP, soil can be classified into one of three categories (S-1, S-2, or S-3). Category S-1 soil represents the highest potential exposure because it assumes unrestricted use of the soil (i.e., residential), whereas category S-3 soil represents the lowest potential for exposure. Residents currently present at the Property are considered to have high frequency and high intensity contact with soil located outside of the building footprint. Soil beneath the building is considered to be isolated. Therefore, soil located from 0 to 15 ft bgs outside the building footprint is categorized as S-1, and soil located beyond 15 ft deep or beneath the building footprint is categorized as S-3.

For purposes of this risk characterization, all soil from 0 to 15 ft bgs at the Property is characterized as S-1 to evaluate risk under potential future unrestricted use (i.e., residential).

4.6.2 Groundwater Categories

The MCP identifies three groundwater categories which correspond to the following three distinct types of exposures:

- **Groundwater Category GW-1** applies to groundwater assumed to be a current or future source of drinking water.
- **Groundwater Category GW-2** applies to groundwater considered to be a potential source of vapors that could migrate through the soil and concentrate in indoor air of existing, occupied buildings. GW-2 is defined as groundwater

located within 30 ft of an existing or planned building or structure that is or will be occupied, and the average annual depth to groundwater in that area is 15 ft or less.

- **Groundwater Category GW-3** applies to groundwater that is assumed to discharge to surface water. All groundwater in the Commonwealth is classified as GW-3.

Because the exposures are not necessarily related to each other, they are not mutually exclusive. Therefore, more than one category may be applicable to a site and/or different areas of a site.

Groundwater beneath the Property is not located within a current or potential drinking water source area. There is an occupied building at the Property, and the depth to groundwater is unknown; however, the depth to groundwater in MW118S (located approximately 35 ft west of the Property) ranges between 4 to 11 ft bgs, and the depth to groundwater in MW117S (located approximately 275 ft southwest of the Property) ranges between 14 to 15 ft bgs. Therefore, we have considered depth to groundwater at the Property to be less than 15 ft bgs. Based on this information, the applicable groundwater categories for the Property are GW-2 and GW-3.

4.7 Identification of EPCs

The MCP requires that the estimation of EPCs be representative of actual and foreseeable exposures.

4.7.1 Soil EPCs

Chlorinated VOCs generally have not been detected in soils beyond the boundaries of 50 Tufts Street. PCE was only detected at a low concentration in one soil sample included in the risk characterization data set (B118D-S2). As a conservative measure, we identified the maximum COPC concentration in B118D-S2 as the soil EPC (Table 4).

4.7.2 Groundwater EPCs

For a Method 1 Risk Characterization, and in accordance with 310 CMR 40.0924, “the groundwater EPC shall be the groundwater resource itself, as measured at each wellhead...” Therefore, the maximum groundwater concentrations for each COPC in monitoring wells MW118S, MW118T, MW118D, MW117S, MW117T, and MW117D were identified as EPCs (Table 3). The locations of groundwater monitoring wells MW118S, MW118T, MW118D, MW117S, MW117T, and MW117D are shown in Fig. 2.

4.8 Comparison of EPCs to MCP Standards

A condition of NSR of harm to health, public welfare, and the environment exists if the EPCs are less than the lowest applicable MCP soil or groundwater standard.

For groundwater, the EPCs were identified and compared to applicable Method 1 GW-2 and GW-3 groundwater standards (Table 3). Based on the depth from which the groundwater samples were collected from each monitoring well (3 to 14 ft bgs at MW118S and 5 to 20 ft bgs at MW117S, 39.5 to 49.5 ft bgs at MW118T and 35 to 45 ft bgs at MW117T, and 60 to 70 ft bgs at MW117D and 70 to 80 ft bgs at MW118D), the applicable Method 1 standards for comparison to MW118S and MW117S are the GW-2 and GW-3 standards, and the applicable Method 1 standards for comparison to MW118T, MW117T, MW118D, and MW117D are the GW-3 standards. The results of this comparison show that the groundwater EPCs for all COPCs are below the applicable Method 1 standards. Therefore, a condition of NSR of harm to health, public welfare and the environment exists at the Property.

For soil, the EPC was identified and compared to applicable Method 1 S-1 soil standards (Table 4). The results of this comparison show that the soil EPCs for the only COPC detected (PCE) is below the Method 1 standard. Therefore, a condition of NSR of harm to health, public welfare and the environment exists at the Property.

4.9 Characterization of Risk of Harm to Safety

In accordance with the MCP (310 CMR 40.0971(5)), a separate characterization of risk of harm to safety was also conducted in accordance with 310 CMR 40.0960. There are no rusted or corroded drums or containers, open pits, lagoons, or other dangerous structures at the Property; there is no threat of fire or explosion at the Property; and there are no uncontained materials which exhibit the characteristics of corrosivity, reactivity, or flammability at the Property. Therefore, a condition of NSR of harm to safety exists at the Property.

4.10 Conclusions

The Method 1 Risk Characterization for the Property concluded:

- A condition of NSR to health, safety, public welfare, and the environment exists for all receptors.

- No remedial actions are required.
- An Activity and Use Limitation (AUL) is not required to maintain a condition of NSR.

Therefore, no further action is required at the Property.

5. Representativeness Evaluation and Data Usability Assessment

The purpose of a Representativeness Evaluation and Data Usability Assessment (REDUA) is to evaluate the extent to which a data set meets specific site characterization and data usability objectives. The majority of the data on which this Partial Permanent Solution Statement relies was evaluated under the REDUA presented in the Phase II/III, which was submitted in July 2008. However, additional groundwater samples have been collected since the Phase II/III, and the analytical results for some of those samples are included in the data set for this Partial Permanent Solution Statement. A REDUA for these additional data are presented below. The REDUA was performed in general accordance with MassDEP Policy #WSC-07-350, "MCP Representativeness Evaluations and Data Usability Assessments," dated September 19, 2007.

5.1 Conceptual Site Model

The CSM is presented in Section 1.6.

5.2 Field and Screening Data

Field data include physical parameter measurements made during groundwater sampling (e.g., pH, temperature, conductivity, dissolved oxygen, etc.). Field and screening data were reviewed with the associated laboratory testing reports as part of the data quality assessment.

5.3 Sampling Rationale, Distribution, and Data Completeness

Environmental samples were submitted for chlorinated VOC testing consistent with the Site history and types of chemicals stored and used at the Site. To characterize the groundwater at the Property, GEI relied on groundwater monitoring wells MW118S, MW118T and MW118D, located approximately 35 ft west of the Property and monitoring wells MW117S, MW117T and MW117D, located 275 feet southwest of the Property. Over an approximately 9 year period, 17 groundwater samples have been collected from MW118S, 18 samples have been collected from MW118T, 23 groundwater samples have been collected from monitoring well MW118D and 17 groundwater samples have been collected from MW117S, MW117T, and MW117D.

Chlorinated VOCs were not detected above laboratory reporting limits in shallow groundwater near the Property; therefore, soil vapor samples were not collected at the Property.

No data associated with conditions at the Property were rejected for quality assurance/quality control reasons. Data gaps related to sample distribution or data quality were not identified. Therefore, the data set is considered 100% complete. Inconsistent data was not identified. Field screening results, and observations such as visual and olfactory observations, were consistent with laboratory testing results. There is little uncertainty associated with the data used to support this Partial Permanent Solution Statement given the number of samples collected and the locations at which they were collected. All data collected were considered representative.

5.4 Data Usability Assessment

Laboratory testing data used to support this Partial Permanent Solution Statement were generated pursuant to the MassDEP Compendium of Analytical Methods (CAM) and 310 CMR 40.1056 and meet the criteria for “Presumptive Certainty” as identified in the MassDEP Document “WSC No. 10-320: Compendium of Quality Control Requirements and Performance Standards for Selected Analytical Protocols,” dated July 1, 2010. These data also are consistent with our field observations, are representative of conditions that exist or existed at the Property, and are of a level of precision and accuracy commensurate with the preparation of this Partial Permanent Solution Statement.

5.5 Data Usability Criteria

The Precision Accuracy Representativeness Completeness Comparability and Sensitivity (PARCCS) parameters of the data were evaluated as part of our field procedures, our laboratories’ analytical protocols, and our in-house data review and validation process. The following groundwater data for MW118S (for COPCs) obtained since the Phase II/III were qualified by the laboratory:

- In April 2009, the detection limits of all compounds, except chlorobenzene, ethylbenzene, 2-hexanone, 1,1,1,2-tetrachloroethane, PCE, and xylenes, were qualified as being estimated.
- The concentration of PCE in April 2015 was qualified as being estimated due to the detection being below the laboratory reporting limit.

The following groundwater data for MW118T (for COPCs) obtained since the Phase II/III were qualified by the laboratory:

- The concentration of 1,1-dichloroethane in October 2009 was qualified as being estimated.

- Concentrations of TCE in July 2009, October 2009, April 2015, and April 2016 were qualified as being estimated due to the detection being below the laboratory reporting limit.
- In April 2012, the detection limit of vinyl chloride was qualified by an external data validator as having a high bias due to blank spike or laboratory control sample recovery above upper control limits.

The following groundwater data for MW118D (for COPCs) obtained since the Phase II/III were qualified by the laboratory:

- Concentrations of PCE in October 2009, 1,1-DCE in November 2012, trans- 1,2- DCE in November 2013 and May 2014, and 1,1-DCE and trans- 1,2- DCE in April 2015 were qualified as being estimated due to the detection being below the laboratory reporting limit.
- The detection limit of vinyl chloride in November 2014 was qualified by an external data validator as having a low bias due to blank spike or laboratory control sample recovery below lower control limits.
- In November 2014, the concentration of 1,1-DCE and the detection limit of trans- 1,2-DCE were qualified as having a high bias due to blank spike or laboratory control sample recovery above upper control limits.
- The detection limits of chloroethane, chloromethane and vinyl chloride were qualified by an external data validator as being estimated due to duplicate precision outside control limits.

The groundwater data obtained from MW117S, MW117T and MW117D since the Phase II/III were not qualified by the laboratory.

These analytical results were considered sufficiently representative of groundwater conditions in MW118S, MW118T, MW118D, MW117S, MW117T and MW117D and were included in the data set used to support this Partial Permanent Solution Statement.

5.6 Statement of Suitability

In summary, the data set relied upon in this Partial Permanent Solution Statement to characterize the conditions at the Property and perform a risk characterization is scientifically valid and defensible. It is of sufficient accuracy, precision, and completeness. In addition, the data set is representative of the spatial and temporal distribution of sampling points.

6. Partial Permanent Solution Statement

Based on the results of the Phase II/III prepared for the Site, and the 84 Washington Street (Lot 2) Risk Characterization, it is the LSP's opinion that a Partial Permanent Solution Statement is appropriate for the Property because:

- No Significant Risk: A condition of NSR to human health, safety, public welfare, and the environment exists for all receptors with No Conditions at the Property, and no remedial actions are required.
- Source Elimination and Control: There are no unpermitted releases of OHM at the Site, and the sources of OHM at the Site are eliminated to the extent feasible and are controlled.
- Migration Control: The groundwater and soil vapor plumes at the Site are stable.
- NAPL: Visible NAPL has not been observed at the Site, and any DNAPL that may be present is not migrating and exists in a stable configuration. The Phase III for the Site demonstrated that it is not feasible to eliminate DNAPL.
- An AUL is not required to maintain a condition of NSR at the Property.

This Partial Permanent Solution only applies to the Property, which is a portion of the disposal site, as shown on [Fig. 2](#).

6.1 Operation, Maintenance, and/or Monitoring

No operation, maintenance, and/or monitoring are required at the Property.

7. Limitations

The conclusions provided by GEI in this report are based solely on the information reported in this document. Additional information which was not available to GEI may result in a modification of the conclusions stated above. This report has been prepared in accordance with generally accepted hydrogeological practices. In the event that a MassDEP audit is conducted, it is the responsibility of UniFirst Corporation, and not GEI, to respond to the MassDEP Notice of Audit Findings. No warranty, expressed or implied, is made.



Geotechnical
Environmental
Water Resources
Ecological



RTN 3-23246
Partial Permanent Solution Statement for 84 Washington
Street (Lot 2), Somerville, Massachusetts
50 Tufts Street Site, Somerville, Massachusetts
UniFirst Corporation
June 23, 2016

Tables

Table 1. Chemical Testing Results - Groundwater
Partial Permanent Solution Statement
84 Washington Street (Lot 2)
Somerville, Massachusetts

Sample Location: Sample Name: Well Screen Interval (ft bgs): Sample Date: Collected By:			MW117S																
			MW117S	MW117S	MW117S	MW117S	MW117S	MW117S	MW117S	MW117S	MW117S	MW117S	MW117S	MW117S	MW117S	MW117S	MW117S	MW117S	MW117S
			5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20
			7/18/07 GEI	10/15/07 GEI	1/11/08 GEI	4/16/08 GEI	7/16/08 GEI	10/21/08 GEI	1/13/09 GEI	4/14/09 GEI	7/15/09 GEI	10/14/09 GEI	4/13/10 GEI	4/21/11 GEI	4/16/12 GEI	4/24/13 GEI	5/1/14 GEI	4/2/15 GEI	4/27/2016 GEI
Analyte	Method	Units																	
Volatile Organic Compounds (VOCs)																			
Acetone	8260	µg/l	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 10	< 10
Benzene			NT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane			NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Carbon disulfide			NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroform			NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.3	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Isopropyltoluene			NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl tert-butyl ether			NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 K-	< 1.0	< 1.0
Methylene chloride			NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Naphthalene			NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethylene (PCE)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene			NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene (TCE)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

- General Notes:**
1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
 2. ft bgs = feet below ground surface.
 3. µg/l = micrograms per liter.
 4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
 5. FD = Field Duplicate Sample.
 6. NT = Not Tested.

- Qualifying Notes:**
- G The result is estimated due to duplicate precision outside control limits.
 - J The reported result is below the laboratory reporting limit and is estimated.
 - J+ The reported result is estimated.
 - K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
 - K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.

Table 1. Chemical Testing Results - Groundwater
Partial Permanent Solution Statement
84 Washington Street (Lot 2)
Somerville, Massachusetts

Sample Location:			MW117T																
Sample Name:			MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T	MW117T
Well Screen Interval (ft bgs):			35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45	35 to 45
Sample Date:			7/19/07	10/11/07	1/15/08	4/16/08	7/16/08	10/21/08	1/13/09	4/14/09	7/15/09	10/16/09	4/13/10	4/21/11	4/16/12	4/23/13	5/1/14	4/2/15	35 to 45 4/27/2016
Collected By:			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Analyte	Method	Units																	
Volatle Organic Compounds (VOCs)	8260	µg/l																	
Acetone			NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 K-	< 10	< 10	< 10	< 10
Benzene			NT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane			NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Carbon disulfide			NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroform			NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Isopropyltoluene			NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl tert-butyl ether			NT	3.4	9.8	4.8	1.7	2.8	1.9	4.1	1.5	7.0	1.6	1.4	< 1.0	< 1.0 K-	< 1.0	< 1.0	< 1.0
Methylene chloride			NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Naphthalene			NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethylene (PCE)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene			NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene (TCE)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

General Notes:

- Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
- ft bgs = feet below ground surface.
- µg/l = micrograms per liter.
- "< " = The analyte was not detected at a concentration above the specified reporting limit.
- FD = Field Duplicate Sample.
- NT = Not Tested.

Qualifying Notes:

- G The result is estimated due to duplicate precision outside control limits.
- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.
- K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
- K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.

Table 1. Chemical Testing Results - Groundwater
Partial Permanent Solution Statement
84 Washington Street (Lot 2)
Somerville, Massachusetts

Sample Location:			MW117D																
Sample Name:			MW117D	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D	MW117D
Well Screen Interval (ft bgs):			60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70	60 to 70
Sample Date:			7/19/07	10/11/07	1/15/08	4/16/08	7/16/08	10/21/08	1/13/09	4/14/09	7/15/09	10/14/09	4/13/10	4/20/11	4/16/12	4/24/13	5/1/14	4/2/15	4/28/16
Collected By:			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Analyte	Method	Units																	
Volatile Organic Compounds (VOCs)																			
Acetone	8260	µg/l	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 10	< 10	< 10
Benzene			NT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane			NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Carbon disulfide			NT	< 5.0	< 5.0	6.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroform			NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	2.0	0.43 J
1,1-Dichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Isopropyltoluene			NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl tert-butyl ether			NT	1.6	2.3	1.5	< 1.0	1.5	0.96 J	0.86 J	1.3	1.5	1.2	< 1.0	< 1.0	6.8	< 1.0	< 1.0	0.66 J
Methylene chloride			NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Naphthalene			NT	< 5.0	4.9 J	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethylene (PCE)			0.54 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene			NT	0.98 J	< 1.0	0.34 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene (TCE)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. FD = Field Duplicate Sample.
6. NT = Not Tested.

Qualifying Notes:

- G The result is estimated due to duplicate precision outside control limits.
- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.
- K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
- K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.

Table 1. Chemical Testing Results - Groundwater
Partial Permanent Solution Statement
84 Washington Street (Lot 2)
Somerville, Massachusetts

Sample Location:			MW118S																
Sample Name:			MW118S	MW118S	MW118S	MW118S	MW118S	MW118S	MW118S	MW118S	MW118S	MW118S	MW118S	MW118S	MW118S	MW118S	MW118S	MW118S	MW118S
Well Screen Interval (ft bgs):			3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14	3 to 14
Sample Date:			7/20/07	8/30/07	10/11/07	1/11/08	4/16/08	7/15/08	10/21/08	1/14/09	4/15/09	7/15/09	10/14/09	4/12/10	4/20/11	4/24/13	5/1/14	4/2/15	4/28/16
Collected By:			GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI
Analyte	Method	Units																	
Volatile Organic Compounds (VOCs)	8260	µg/l																	
Acetone			NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 10	< 10	< 10	< 10
Benzene			NT	NT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 J+	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane			NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Carbon disulfide			NT	NT	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroform			NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Isopropyltoluene			NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	21.9	< 5.0	2.9 J	6.0	< 5.0
Methyl tert-butyl ether			NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylene chloride			NT	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J+	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Naphthalene			NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethylene (PCE)			0.39 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.29 J	< 1.0
Toluene			NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene (TCE)			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J+	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

General Notes:

- Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
- ft bgs = feet below ground surface.
- µg/l = micrograms per liter.
- "< " = The analyte was not detected at a concentration above the specified reporting limit.
- FD = Field Duplicate Sample.
- NT = Not Tested.

Qualifying Notes:

- G The result is estimated due to duplicate precision outside control limits.
- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.
- K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
- K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.

Table 1. Chemical Testing Results - Groundwater
Partial Permanent Solution Statement
84 Washington Street (Lot 2)
Somerville, Massachusetts

Sample Location: Sample Name: Well Screen Interval (ft bgs): Sample Date: Collected By:			MW118T																	
			MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	MW118T	
			39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5	39.5 to 49.5
			7/20/07	8/30/07	10/11/07	1/15/08	4/16/08	7/15/08	10/21/08	1/14/09	4/14/09	7/14/09	10/15/09	4/12/10	4/20/11	4/17/12	4/24/13	5/1/14	4/3/15	4/28/16
Analyte	Method	Units																		
Volatile Organic Compounds (VOCs)																				
Acetone	8260	µg/l	NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 10	< 10	< 10	
Benzene			NT	NT	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
Bromodichloromethane			NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Carbon disulfide			NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
Chloroethane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
Chloroform			NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
1,1-Dichloroethane			35.4	34.4	44.2	42.3	42.0	41.9	37.0	33.4	33.6	40.0	53.3 J+	37.8	35.9	28.8	26.9	28.4	31.3	
1,1-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
cis-1,2-Dichloroethylene			0.45 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.45 J	
trans-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
4-Isopropyltoluene			NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
Methyl tert-butyl ether			NT	NT	2.4	3.1	2.2	2.5	2.2	2.3	2.0	1.9	7.5	1.2	2.4	1.8	7.1	0.94 J	1.5	
Methylene chloride			NT	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
Naphthalene			NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
Tetrachloroethylene (PCE)			3.0	3.8	2.2	2.9	2.7	2.5	2.4	2.1	2.0	1.7	2.8	1.6	2.1	2.1	1.5	1.0	1.3	
Toluene			NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Trichloroethylene (TCE)			< 1.0	< 1.0	< 1.0	0.31 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.50 J	0.80 J	< 1.0	< 1.0	< 1.0	< 1.0	0.26 J	
Vinyl chloride			< 1.0	2.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 K+	< 1.0	< 1.0	< 1.0	

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- Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
 - ft bgs = feet below ground surface.
 - µg/l = micrograms per liter.
 - "< " = The analyte was not detected at a concentration above the specified reporting limit.
 - FD = Field Duplicate Sample.
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Table 1. Chemical Testing Results - Groundwater
Partial Permanent Solution Statement
84 Washington Street (Lot 2)
Somerville, Massachusetts

Sample Location: Sample Name: Well Screen Interval (ft bgs): Sample Date: Collected By:			MW118D																							COBBLE-IR-1	
			MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW901 (FD)	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	MW118D	COBBLE-IR-1	
			70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	70 to 80	Unknown
			7/20/07	8/30/07	10/11/07	1/16/08	4/14/08	7/16/08	10/21/08	1/14/09	4/14/09	7/15/09	10/14/09	10/14/09	4/12/10	4/20/11	4/16/12	11/12/12	4/24/13	11/18/13	5/1/14	11/18/14	4/2/15	11/19/15	4/28/16	6/25/07	
Analyte	Method	Units	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI	GEI		
Volatile Organic Compounds (VOCs)			8260	µg/l																							
Acetone			NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0 K-	< 10	< 10 K-	< 10	< 10	< 10	< 10	< 10	5.8	
Benzene			NT	NT	< 0.50	0.24 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
Bromodichloromethane			NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.32 J	
Carbon disulfide			NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
Chloroethane			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
Chloroform			NT	NT	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	5.6	
1,1-Dichloroethane			20.3	21.4	31.2	31.7	33.3	34.3	22.8	26.0	22.8	28.7	41.2	39.5	40.0	43.5	36.9	41.4	38.5	39.1	40.6	47.9	46.6	39.3	43.9	< 1.0	
1,1-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
cis-1,2-Dichloroethylene			0.55 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.96 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
trans-1,2-Dichloroethylene			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.74 J	0.68 J	< 1.0 K+	0.62 J	2.2	2.9	< 1.0	
4-Isopropyltoluene			NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
Methyl tert-butyl ether			NT	NT	< 1.0	0.40 J	< 1.0	0.40 J	< 1.0	< 1.0	0.38 J	0.39 J	0.55 J	0.51 J	< 1.0	0.83 J	< 1.0	0.63 J	< 1.0	0.46 J	< 1.0	1.9 K+	0.69 J	0.89 J	< 1.0	< 1.0	
Methylene chloride			NT	NT	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
Naphthalene			NT	NT	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J+	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	1.1 J	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
Tetrachloroethylene (PCE)			7.0	8.4	8.2	6.1	5.7	7.1	2.1	1.2	< 1.0	2.3	0.93 J	1.1	1.5	4.6	8.4	4.3	5.8	1.3	< 1.0	2.2	5.1	39.7	49.8	< 1.0	
Toluene			NT	NT	< 1.0	0.62 J	< 1.0	0.27 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	
Trichloroethylene (TCE)			1.2	3.9	1.8	0.94 J	1.0	1.9	< 1.0	1.9	1.5	3.0	6.1	6.3	10.0	11.9	7.4	11.5	7.7	7.3	4.3	6.9	4.6	17.6	14.4	< 1.0	
Vinyl chloride			< 1.0	2.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	

General Notes:

1. Analytes detected in at least one sample are reported here. For a complete list of analytes refer to the laboratory data reports.
2. ft bgs = feet below ground surface.
3. µg/l = micrograms per liter.
4. "< " = The analyte was not detected at a concentration above the specified reporting limit.
5. FD = Field Duplicate Sample.
6. NT = Not Tested.

Qualifying Notes:

- G The result is estimated due to duplicate precision outside control limits.
- J The reported result is below the laboratory reporting limit and is estimated.
- J+ The reported result is estimated.
- K- The result has a low bias due to blank spike or laboratory control sample recovery below lower control limits.
- K+ The result has a high bias due to blank spike or laboratory control sample recovery above upper control limits.

Table 2. Chemical Testing Results - Soil
Partial Permanent Solution Statement
84 Washington Street (Lot 2)
Somerville, Massachusetts

Location Name:			MW117D	MW118D
Sample Name:			B117D-S2	B118D-S2
Sample Depth (ft):			8 to 10	10 to 12
Sample Date:			6/18/07	6/25/07
Analyte	Method	Units		
Volatile Organic Compounds (VOCs)				
Benzene	8260	mg/kg	< 0.025	0.102
Methylene chloride			0.0952 J B	0.126 B
Naphthalene			0.829	< 0.3
Tetrachloroethene (PCE)			< 0.1	0.233
Toluene			< 0.25	0.0235 J
Other				
Solids, Percent	1603M	%	87.1	93.8
Specific Conductivity	E120.1	µmhos/cm	NT	NT
Total Organic Carbon	9060	mg/kg	4,740	9,760
pH	9045	s.u.	NT	NT

General Notes:

1. Generally, only analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
2. mg/kg = milligrams per kilogram.
3. µmhos/cm = micro-ohms per centimeter.
4. s.u. = standard units.
5. NT = Not Tested

Qualifying Notes:

- J The reported result is below the laboratory reporting limit and is estimated.
- B The reported result is attributed to sampling or laboratory contamination.

Table 3. Exposure Point Concentrations - Groundwater
Partial Permanent Solution Statement
84 Washington Street (Lot 2)
Somerville, Massachusetts

Analyte	Sample Location:				MW117S Exposure Point Concentrations ³	MW117T Exposure Point Concentrations ³	MW117D Exposure Point Concentrations ³
	Method	Units	Method 1 Standards				
			GW-2	GW-3			
Volatile Organic Compounds (VOCs)	8260B	µg/l					
Chloroethane			NS	NS	< 2.0	< 2.0	< 2.0
1,1-Dichloroethane			2000	20,000	< 1.0	< 1.0	< 1.0
1,1-Dichloroethylene			80	30,000	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethylene			20	50,000	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethylene			80	50,000	< 1.0	< 1.0	< 1.0
Tetrachloroethylene (PCE)			50	30,000	< 1.0	< 1.0	0.54 J
Trichloroethylene (TCE)			5	5,000	< 1.0	< 1.0	< 1.0
Vinyl chloride			2	50,000	< 1.0	< 1.0	< 1.0

General Notes:

1. µg/l = micrograms per liter.
2. "<" = The analyte was not detected at a concentration above the specified reporting limit.
3. The exposure point concentrations are the maximum VOC concentrations of Compounds of Potential Concern (COPCs) detected at each monitoring well.
4. Based on the depth from which the groundwater samples were collected from each monitoring well, the applicable Method 1 Standards for comparison to MW 117S and MW118S are the GW-2 and GW-3 Standards, and the applicable Method 1 Standard for comparison to MW117T, MW118T, MW117D and MW118D is the GW-3

Table 3. Exposure Point Concentrations - Groundwater
Partial Permanent Solution Statement
84 Washington Street (Lot 2)
Somerville, Massachusetts

Sample Location:					MW118S	MW118T	MW118D
Analyte	Method	Units	Method 1 Standards		Exposure Point Concentrations ³	Exposure Point Concentrations ³	Exposure Point Concentrations ³
			GW-2	GW-3			
Volatile Organic Compounds (VOCs)	8260B	µg/l					
Chloroethane			NS	NS	< 2.0	< 2.0	4.8
1,1-Dichloroethane			2000	20,000	< 1.0	53.3	47.9
1,1-Dichloroethylene			80	30,000	< 1.0	< 1.0	1.8
cis-1,2-Dichloroethylene			20	50,000	< 1.0	0.45 J	27.8
trans-1,2-Dichloroethylene			80	50,000	< 1.0	< 1.0	2.9
Tetrachloroethylene (PCE)			50	30,000	0.39 J	3.8	49.8
Trichloroethylene (TCE)			5	5,000	< 1.0	0.80 J	17.6
Vinyl chloride			2	50,000	< 1.0	2.3	20.2

General Notes:

1. µg/l = micrograms per liter.
2. "<" = The analyte was not detected at a concentration above the specified reporting limit.
3. The exposure point concentrations are the maximum VOC concentrations of Compounds of Potential Concern (COPCs) detected at each monitoring well.
4. Based on the depth from which the groundwater samples were collected from each monitoring well, the applicable Method 1 Standards for comparison to MW 117S and MW118S are the GW-2 and GW-3 Standards, and the applicable Method 1 Standard for comparison to MW117T, MW118T, MW117D and MW118D is the GW-3

Table 4. Exposure Point Concentrations - Soil
Partial Permanent Solution Statement
84 Washington Street (Lot 2)
Somerville, Massachusetts

					Exposure Point Concentration ²
Analyte	Method	Units	Method 1 Standards		
			S-1/GW-2	S-1/GW-3	
Volatile Organic Compounds (VOCs) Tetrachloroethene (PCE)	SW 8260B	mg/kg	10	30	0.233

General Notes:

- 1. mg/kg = milligrams per kilogram.
- 2. The exposure point concentration is the maximum VOC concentration of Compounds of Potential Concern (COPCs) detected in soil from B118D.



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RTN 3-23246
Partial Permanent Solution Statement for 84 Washington
Street (Lot 2), Somerville, Massachusetts
50 Tufts Street Site, Somerville, Massachusetts
UniFirst Corporation
June 23, 2016

Figures



0 1000 2000 4000 6000
SCALE, FEET



This Image provided by MassGIS is taken from
U.S.G.S. Topographic 7.5 X 15 Minute Series
Boston North, MA Quadrangle, 1985.
Datum is National Geodetic Vertical Datum (NGVD 1929).
Contour Interval is 3 Meters.

Partial Permanent Solution Statement
50 Tufts Street
Somerville, Massachusetts

UniFirst Corporation
Wilmington, Massachusetts



Project 04516-3

June 2016

SITE LOCATION MAP

Fig. 1



LEGEND:

- MONITORING WELL WITH SOIL VAPOR SAMPLE PORT INSTALLED BY GEI, JANUARY 2007 - JANUARY 2008
- MONITORING WELL BY KLEINFELDER, SEPTEMBER 2012, MARCH 2014, AND APRIL 2014
- ⊗ MONITORING WELL INSTALLED BY SANBORN HEAD ASSOCIATES, 2002
- MONITORING WELL INSTALLED BY GEOINSIGHT, JUNE 2004
- SOIL BORING ADVANCED BY GEOINSIGHT, AUGUST 2004
- MONITORING WELL INSTALLED BY GEI, MAY 2006
- DRIVEN POINT MONITORING WELL INSTALLED BY MADEP, MAY 2007
- ⊕ MONITORING WELL INSTALLED PREVIOUSLY, DATE UNKNOWN
- ▲ PREVIOUSLY INSTALLED IRRIGATION WELL
- ▲ SOIL SAMPLE COLLECTED PRIOR TO MONITORING WELL INSTALLATION
- 84 STREET ADDRESS

MBTA = MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

- DISPOSAL SITE BOUNDARY (DASHED WHERE INFERRED)
- EXTENT OF PCE CONCENTRATION IN SHALLOW GROUNDWATER GREATER THAN OR EQUAL TO 50 MICROGRAMS PER LITER ($\mu\text{g/l}$)
- PORTION OF SITE SUBJECT TO THE PERMANENT SOLUTION WITHOUT CONDITIONS

GENERAL NOTES:

1. HORIZONTAL CONTROL FOR THIS PLAN WAS ESTABLISHED BY GPS AND IS BASED ON THE NORTH AMERICAN DATUM OF 1983.
2. STREET AND PROPERTY LINES BASED ON SOMERVILLE ASSESSORS' MAPS AND ARE BEST FIT RELATIVE TO THE LOCATION OF THE 50 TUFTS ST. BUILDING.
3. MONITORING WELL LOCATIONS WERE ESTABLISHED BASED ON THE GROUND SURVEYS BY BSC GROUP, INC.
4. GEI OBSERVED ABANDONMENT OF SH-MW1 AND SH-1 THROUGH SH-5 IN 2007.

Partial Permanent Solution Statement
50 Tufts Street
Somerville, Massachusetts
UniFirst Corporation
Wilmington, Massachusetts

GEI Consultants
Project 04516-3

**84 WASHINGTON STREET
(Lot 2) -
Portion of Disposal Site
Subject to Permanent Solution**

June 2016

Fig. 2

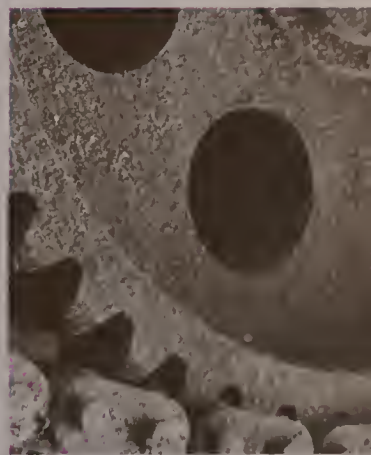


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Appendix B

Public Notification Documentation



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June 23, 2016
Project 04516-3

Mayor Joseph A. Curtatone
Somerville City Hall
93 Highland Avenue
Somerville, MA 02143-1740

Dear Mayor Curtatone:

**Re: Partial Permanent Solution Statement
84 Washington Street (Lot 2)
Somerville, Massachusetts
MassDEP RTN 3-23246**

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, GEI Consultants, Inc. is notifying your office that a Partial Permanent Solution Statement has been prepared for the portion of the 50 Tufts Street disposal site (Site) identified as 84 Washington Street (Lot 2) in Somerville, Massachusetts (Property).

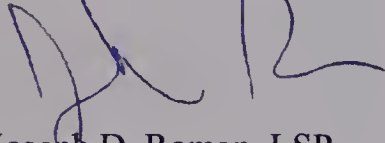
The conclusions of the Partial Permanent Solution Statement include the following:

- A condition of No Significant Risk (NSR) to human health, safety, public welfare, and the environment exists for all receptors with No Conditions at the Property, and no remedial actions are required.
- Source Elimination and Control: There are no unpermitted releases of oil or hazardous material (OHM) at the Site, and the sources of OHM at the Site are eliminated to the extent feasible and are controlled.
- Migration Control: The groundwater and soil vapor plumes at the Site are stable.
- Non-Aqueous Phase Liquid (NAPL): Visible NAPL has not been observed at the Site, and any dense non-aqueous phase liquid (DNAPL) that may be present is not migrating and exists in a stable configuration. The Phase III for the Site demonstrated that it is not feasible to eliminate DNAPL.
- An Activity and Use Limitation (AUL) is not required to maintain a condition of NSR at the Property.

The Partial Permanent Solution Statement has been submitted to the Massachusetts Department of Environmental Protection (MassDEP) Northeast Regional Office in Wilmington, Massachusetts for the above-referenced Site.

If you have any questions, please do not hesitate to contact me at 781-721-4012 or igladstone@geiconsultants.com.

Sincerely,
GEI CONSULTANTS, INC.



Joseph D. Roman, LSP
Project Manager / Senior Scientist



Ileen S. Gladstone, P.E., LSP, LEED AP
Senior Vice President

CMM/JDR/ISG:jj

c: Timothy Cosgrave, UniFirst Corporation
Massachusetts Department of Environmental Protection

Consulting
Engineers and
Scientists
June 23, 2016
Project 04516-3

Mr. Doug Kress
Director, Health Department
City Hall Annex
50 Evergreen Avenue
Somerville, MA 02145-2819

Dear Mr. Kress:

**Re: Partial Permanent Solution Statement
84 Washington Street (Lot 2)
Somerville, Massachusetts
MassDEP RTN 3-23246**

On behalf of UniFirst Corporation (UniFirst) of Wilmington, Massachusetts, GEI Consultants, Inc. is notifying your office that a Partial Permanent Solution Statement has been prepared for the portion of the 50 Tufts Street disposal site (Site) identified as 84 Washington Street (Lot 2) in Somerville, Massachusetts (Property).

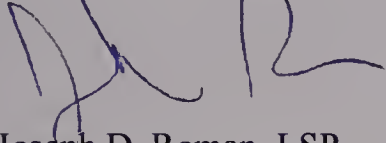
The conclusions of the Partial Permanent Solution Statement include the following:

- **No Significant Risk (NSR):** A condition of NSR to human health, safety, public welfare, and the environment exists for all receptors with No Conditions at the Property, and no remedial actions are required.
- **Source Elimination and Control:** There are no unpermitted releases of oil or hazardous material (OHM) at the Site, and the sources of OHM at the Site are eliminated to the extent feasible and are controlled.
- **Migration Control:** The groundwater and soil vapor plumes at the Site are stable.
- **Non-Aqueous Phase Liquid (NAPL):** Visible NAPL has not been observed at the Site, and any dense non-aqueous phase liquid (DNAPL) that may be present is not migrating and exists in a stable configuration. The Phase III for the Site demonstrated that it is not feasible to eliminate DNAPL.
- **An Activity and Use Limitation (AUL)** is not required to maintain a condition of NSR at the Property.

The Partial Permanent Solution Statement has been submitted to the Massachusetts Department of Environmental Protection (MassDEP) Northeast Regional Office in Wilmington, Massachusetts for the above-referenced Site.

If you have any questions, please do not hesitate to contact me at 781-721-4012 or igladstone@geiconsultants.com.

Sincerely,
GEI CONSULTANTS, INC.



Joseph D. Roman, LSP
Project Manager / Senior Scientist



Ileen S. Gladstone, P.E., LSP, LEED AP
Senior Vice President

CMM/JDR/ISG:jj

c: Timothy Cosgrave, UniFirst Corporation
Massachusetts Department of Environmental Protection

PARTIAL PERMANENT SOLUTION STATEMENT
84 Washington Street (Lot 2), Somerville, MA
GEI Project No. 04516-3

785-0212
Som.R.

Prepared by:



UniFirst Corporation
68 Jonspin Road
Wilmington, MA 01887

June 28, 2016



